



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/815,164

03/31/2004

Min Zuo

121036-067

8207

35684 7590 05/31/2007
BUTZEL LONG
350 SOUTH MAIN STREET
SUITE 300
ANN ARBOR, MI 48104

EXAMINER

TRAN, THAO T

ART UNIT

PAPER NUMBER

1711

MAIL DATE

DELIVERY MODE

05/31/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/815,164

Applicant(s)

ZUO ET AL.

Examiner

Thao T. Tran

Art Unit

1711

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,6-10,15 and 17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,6-10,15 and 17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/19/2007 has been entered.
2. Claims 1-3, 6-10, 15, and 17 are currently pending in this application. Claims 4-5, 11-14, and 16 have been canceled.
3. In view of the prior Office action, the prior art rejection of the claims has been withdrawn due to the Amendments made thereto.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-3, 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Lin et al. (US Pat. 6,489,436). This is used as the equivalent of Nippon Metron, Ltd. (WO 01/29136).

Lin discloses a metal laminate for used in a flexible wiring board, the lamiante comprising a polyimide copolymer laminated with metallic foil. The polyimide copolymer is a

Art Unit: 1711

product of (1) a copolymer of (A) isopropylidene-bis-4-phenyleneoxy-4-phthalic acid dianhydride and (B) 3,3',4,4'-benzophenonetetracarboxylic acid dianhydride, and (2) (C) 6-amino-2-(p-aminophenyl)-benzimidazole (see abstract).

Component (B) is used not more than 90% (see col. 2, ln. 14-16), giving the amount of (A) to be at least 10%, which read on the instantly claimed ranges.

With respect to the polyimide copolymer being resistant to curling, since the product of the combined references is the same, it would inherently have the same property as claimed.

With respect to the laminate being subjected to an etching process, it has been within the skill in the art that process limitations would have no patentable weight in an article claim so long as the article is the same.

Claim Rejections - 35 USC § 103

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claims 7-10 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin as applied in claims 1-3 and 6 above and further in view of Chen et al. (US Pat. 5,290,909).

Lin is as set forth in claims 1-3 and 6 above and incorporated herein.

Lin does not teach the use of a mixture of diamines.

Chen discloses polyimide film compositions applied to metallic foil substrates comprising the reaction product of the applicant's claimed components (B), (C), (D1), and (D2) (abstract; example 1). Examples show the applicant's claimed ratios of (C) to (D1) or (D2) (examples 1-2).

Art Unit: 1711

Therefore, it would have been obvious to one of ordinary skill in the art to have employed at least (D1) or (D2) in combination with (C) as the diamine component of Chen in the polyimide of Lin. The reason is that combination of two components of the same purpose has been considered *prima facie* obvious of providing the same purpose.

With respect to the polyimide copolymer being resistant to curling, since the product of the combined references is the same, it would inherently have the same property as claimed.

With respect to the laminate being subjected to an etching process, it has been within the skill in the art that process limitations would have no patentable weight in an article claim so long as the article is the same.

8. Claims 1-3, 6, 10, 15, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al. (US Pat. 4,937,133) in view of Lin et al.

Watanabe discloses a printed circuit base, comprising a layer of polyimide and a conductive layer. The polyimide layer is formed by first forming a solution of polyamide in a solvent (DMAC), applying the polyamide solution on copper foil, heating to imidize the polyamic acid (see Examples 1-7). The laminate is then subjected to etching and does not curl, twist, or wrap (see abstract; col. 2, ln. 28-32).

The polyamide solution can be a mixture of various diamines and acid anhydrides. The diamines include applicants' claimed components (D1) and (D2) and the dianhydrides include the presently claimed component (B) (see col. 8, ln. 1-50).

Watanabe, however, does not teach the use of the presently claimed component (A).

Art Unit: 1711

Lin teaches copolyimides for metal lamination, where mixtures of dianhydrides are used in the presently claimed ratio. Component (A) is used with a second dianhydride similar to (B) and reacted with (C) to enhance solubility of the resulting polyimide (col. 2 lines 14-21; examples). Thus, it would have been prima facie obvious to combine components (B) and (A) in the applicant's claimed ratios to provide a finished polyimide film with enhanced solubility.

Response to Arguments

9. Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

Contact Information

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thao T. Tran whose telephone number is 571-272-1080. The examiner can normally be reached on Monday-Friday, from 9:00 a.m. - 5:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 571-272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1711

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Thao T. Tran
Primary Examiner
Art Unit 1711

tt